

Rosalind Fazel

From: joshison@daytonsuperior.com
Sent: Tuesday, December 08, 2009 9:20 AM
To: Rosalind Fazel
Subject: AC133 Comments
Attachments: half couplers.pdf

Comments on Criteria AC133.

Josh Ison
Dayton Superior
937.428.6360 x44141
joshison@daytonsuperior.com

Comments:

Please find the attached comments pertaining to the use of half couplers as splices and not end anchors.

Attachments:

- half couplers.pdf

Ison, Josh

From: Ison, Josh
Sent: Thursday, November 19, 2009 2:07 PM
To: 'David Musselwhite'
Subject: ESR-2481 - D360 applications

Hi David,

For the D360 weldable coupler, we seek to include this product in ESR-2481 for performance equivalent to AC133. I want to clarify, we do not want to certify welds or restrict applications of use, we only want to attest to the fact that the threaded end of this coupler can achieve Type 2 performance as laid out in AC133.

One common typical real world applications of this is when the threaded bars are at the field but are too short. A plate of material can be used to "fill in" the gap with the use to 2 weldable couplers. For instance, the bars may be in concrete, in line, but separated by a distance. 2 weldable couplers can be threaded onto the bars with a steel plate inserted and welded in between, Figure 1.

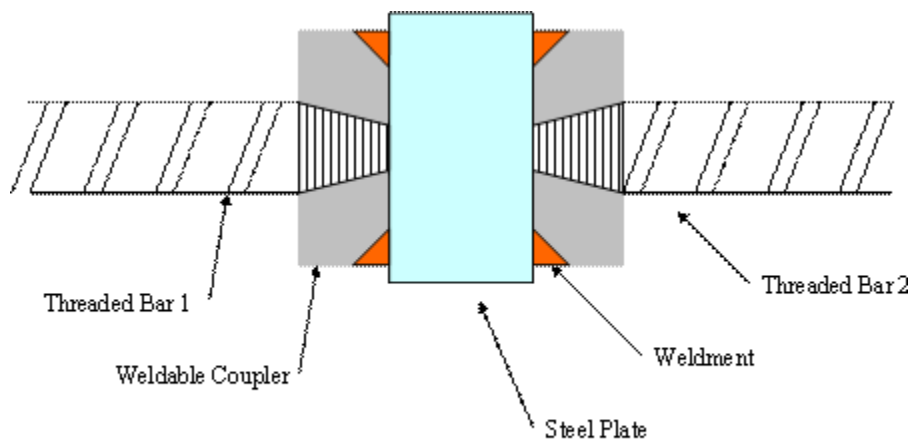


Figure 1

Another application has been when a user has changed the splicing system of use. Most available systems have weldable couplers which, with the assistance of a steel plate, act as universal translators of different splicing systems, Figure 2.

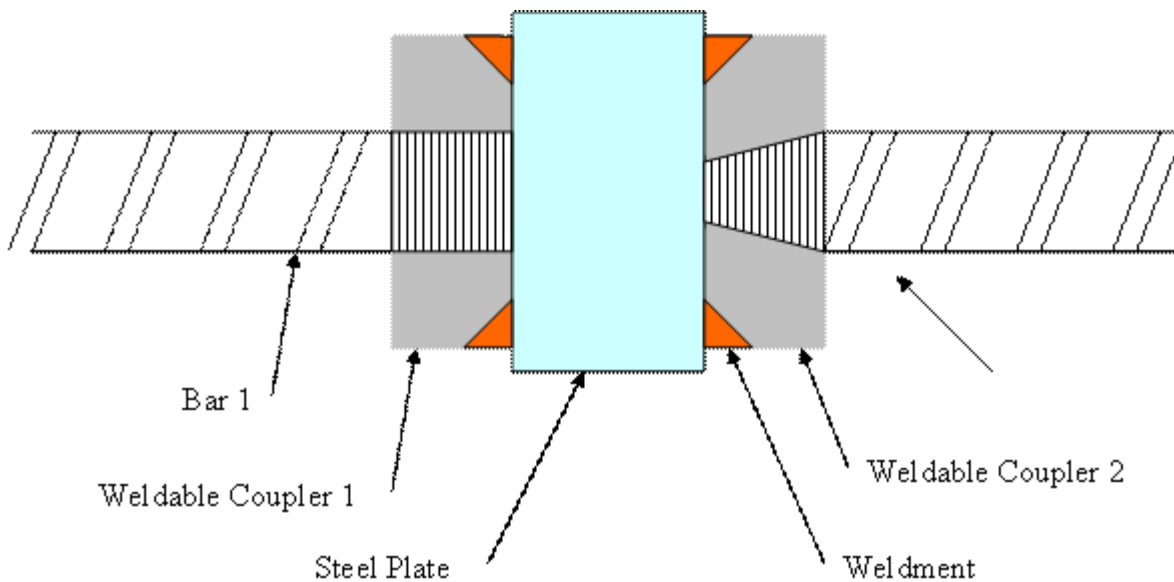


Figure 2

Again, we do not intend to limit a designer's use of this coupler, but to say, that when used as a splice, and not a headed bar, the coupler's performance is equal to that of a Type 2 coupler as listed in AC133. The final design of the steel plate and weldment is the responsibility of the designer, not DSC.

Thanks,

Josh

Josh Ison
Engineering Lead, NPD

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From: David Musselwhite [mailto:DMusselwhite@icc-es.org]
Sent: Thursday, November 05, 2009 4:12 PM
To: Ison, Josh
Subject: RE: ESR-2481 - Updated Suppliers

Please provide actual application where these welded half couples are used and how they are designed.

J. David Musselwhite, P.E.
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12/8/2009

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Rosalind Fazel

From: bstewart@erico.com
Sent: Tuesday, December 29, 2009 9:33 AM
To: Rosalind Fazel
Subject: AC133 Comments
Attachments: AC133 comments from ERICO.pdf

Comments on Criteria AC133.

Bob Stewart
ERICO
440 248 8641 EXT 2244
bstewart@erico.com

Comments:

Refer to attached document.

Attachments:

- AC133 comments from ERICO.pdf

Date: 12-29-2009

To: ICC EVALUATION SERVICES, INC.

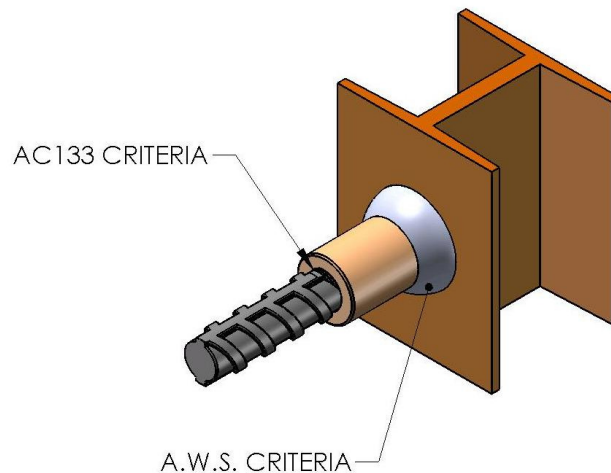
Subject: Proposed Revisions to the Acceptance Criteria for Mechanical Connector Systems for Steel Reinforcement Bars, Subject AC133-1209-R1(RK/BG)

Dear Madam or Sir,

In the Proposed Revisions to the Acceptance Criteria for Mechanical Connector Systems for Steel Reinforcement Bars Subject AC133-0129-R1(RK/BG) section labeled Important Note, ICC requested industry comments and proposals.

A weldable half-coupler provides a mechanical means of connecting reinforcing rebar to structural steel. One end of the coupler is manufactured as a mechanical connector system for steel reinforcement rebar. The other end of the coupler is manufactured with the capability of being welded to a structural steel plate or shape. ERICO does not weld the half coupler. The contractor welds the half coupler. Half couplers are mainly used to make connections in composite designs i.e. concrete beams to steel columns or to tie together concrete and structural steel forming members. NOTE: It is ERICO's experience that half couplers are rarely, if ever, utilized for "anchoring" (similar to anchor bolts). The industry has other products for "anchoring" applications (which is more commonly referred to as "headed deformed rebar") i.e. the LENTON TERMINATOR®.

The current proposed AC133 (and past revisions) addresses the evaluation of one end of the half-coupler that is utilized for the mechanical connection of reinforcing rebar steel bars embedded in concrete for compliance with Section 1911 and/or Section 1912 of the 2009 IBC. The current American Welding Society (AWS) D1.1 Structural Welding Code addresses the evaluation of other end of the half coupler that is welded to the structural steel component. Refer to the diagram below.



The American Welding Society D1.1 "Structural Welding Code – Steel" code is the American welding industry's minimum requirements for quality fabrication of structural steel for the vast majority of commercial applications. AWS D1.1 is a model weld code that has been approved by American National Standards Institute (ANSI) making D1.1 an 'American National Standard', and adopted by several governmental bodies including the US Department of Defense, and several local US government bodies. The first AWS welding code was released in 1928. Each revision modifies the code (adds/removes materials, clarifies items, adds appendices, etc...), but the primary focus of the code has remained the same – structural welding. The AWS code covers:



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- Weld design
- Statically and cyclically loaded connections
- Pre-qualification and qualification of weld designs
- Test procedures
- Defines responsibilities of Engineers, Contractors, and Inspectors

This code covers the welding requirements for any type of welded structure made from the commonly used carbon and low alloy construction steels. AWS D1.1 primarily covers the welding of structural steel material for construction purposes. AWS D1.1 specifies that it is the ultimate responsibility of the Contractor to properly weld and to make sure the welder has current certifications and is capable of performing the job requirements. AWS D1.1 emphasizes the role of the "Engineer" in weld design: "'Engineer" shall be defined as a duly designated individual who acts for, and in behalf of, the Owner on all matters within the scope of the code", as defined in section 1.3. AWS D1.1 "Structural Welding Code-Steel" is worded such that the "Engineer" (engineer of record) is ultimately responsible for the design the weld.

Welds that are to be covered by current AWS D1.1 must have a Welding Procedure Specification (WPS). There is a difference between prequalified WPSs and those that are qualified by evaluation and testing. In order for a WPS to be prequalified, it must comply with all the criteria of chapter 3 in the AWS D1.1 Structural Welding Code. However, it is also possible to qualify WPSs by test in conformance with AWS D1.1, Chapter 4 – Qualification. Generally speaking, a prequalified WPS does not need the approval of the engineer, but a qualified WPS does. Once a WPS is qualified, it may then be submitted to the Engineer for approval, consistent with AWS D1.1, Section 4.1.1.

In summation, as in the past revisions of AC133, the proposed AC133 addresses the mechanical means of connecting reinforcing rebar to the weldable half coupler. ERICO would not support an additional AC on specifying, qualifying or testing of welds. AWS D1.1 addresses the welding of the half coupler to structural steel plates and shapes. There is no need for an additional ICC Acceptance Criteria for half couplers. ERICO's current ER-3967 report per section 2.1.3.7 (Welded HALF COUPLER) states, "The opposite side is prepared for welding. Refer to the current AWS D1.1 Welding Code for required welding procedures." From this statement it is clear that the half coupler is evaluated and recognized for compliance as a mechanical connector system for steel reinforcement rebar and is prepared for welding. ICC's practice of referring to the AWS for the weldable end of the half coupler should be continued.

Best Regards,

Bob Stewart

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Rosalind Fazel

From: Christian.Dahl@hrc-usa.com
Sent: Monday, December 14, 2009 1:38 PM
To: Rosalind Fazel
Subject: AC133 Comments
Attachments: ICC ac 133 comments dec 2009.pdf

Comments on Criteria AC133.

Christian Dahl
Headed Reinforcement Corp.
714-557-1455
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Comments:
Comments attached

Attachments:

- ICC ac 133 comments dec 2009.pdf

RE: AC133-1209-R1

December 14, 2009

I disagree with the elimination of UBC Type 2, the only ductile mechanical connector system requirement in this AC.

The nominal strength requirements left in the proposed AC will not necessarily result in significant inelastic capacity. For seismic applications, A 706 reinforcing steel is recommended in potential high strain locations. Depending on the material heat, it takes little or no plastic strain to reach 80 ksi. In fact, the tension level at stage 3 of the cyclic tests (table 1) could very well be more demanding than the static tension requirement left for Type 2 splices. Please note that there is no maximum yield (elastic) limit for A 615 rebar.

There is practically no difference between Type 2 and Type 1 with this revision. Instead, Type 2 has turned into a Type 1 splice.

In lieu of a strain requirement (e.g. Caltrans 6-9% for A706), it was the 95% of actual ultimate tensile requirement (UBC Type 2) that ensured ductility independent of individual material tensile properties.

I understand ICC-ES revise their Acceptance Criteria based upon code "evolution". If the requirements in our building codes require ICC-ES to lower its acceptance criteria, then I would also propose to eliminate the cyclic tension-compression tests. They are very expensive tests that limit the number of products and variations we would seek approval for. If cyclic testing were still required, it would be more economical to separate the tension and compression part.

Sincerely,

Christian L. Dahl



Headed Reinforcement Corp.

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